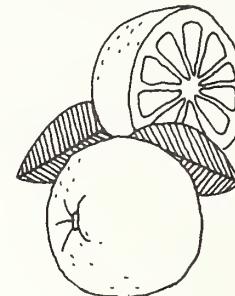
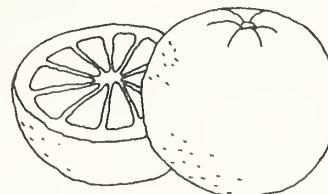


Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

1D1491.
15A1
no. 6

SHIPMENT SPECIFICATIONS for FLORIDA FRESH CITRUS FRUIT



U. S. DEPT. OF AGRICULTURE
NATIONAL AGRI. LIBRARY

Sep. 1, 1970

C & R-PREF

FCS Research Report 6
Farmer Cooperative Service
U.S. Department of Agriculture

99883

FARMER COOPERATIVE SERVICE
U.S. DEPARTMENT OF AGRICULTURE
WASHINGTON, D.C. 20250

Farmer Cooperative Service conducts research; advises directly with cooperative leaders and others; promotes cooperative organization and development through other Federal and State agencies; and publishes results of its research, issues *News for Farmer Cooperatives*, and other education material.

This work is aimed (1) to help farmers get better prices for their products and reduce operating expenses, (2) to help rural and small-town residents use cooperatives to develop rural resources, (3) to help these cooperatives expand their services and operate more efficiently, and (4) to help all Americans understand the work of these cooperatives.

Contents

	<u>Page</u>
Summary	iii
Sample data	1
Method of study	1
Shipment specifications	2
Retail and wholesale buyers compared	2
Retail buyers compared	5
Specification change	6
Total volume specifications	6
Fruit sizes	6
Container types	6
Truck loads	8
Buyer-shipper relationships	10
Size of shipper and type of buyer	10
Cooperatives and type of buyer	11
Sales affiliation and type of buyer	11
Segmented market	11
Reliable business organizations	11
Appendix	12

Summary

This study examines Florida interior area fresh citrus shipments to determine how shippers responded to buyers' requirements. The Citrus and Vegetable Inspection Division of the Florida Department of Agriculture provided Farmer Cooperative Service sample data for the 1958-59, 1961-62, and 1966-67 seasons.

Comparisons of buyers' truckload specifications showed that retailers took significantly larger sized lots, fewer lots, and fewer fruit sizes than wholesalers. Some significant differences were observed in the number of varieties, grades, and container types in loads shipped to retailers compared with wholesalers. However, these did not occur consistently for loads of different kinds of fruit or for all seasons.

Comparisons of truckload specifications for the four largest retailers with specifications for all other retailers showed a similar scattering of significant differences but, again, these did not occur consistently for different kinds of fruit or for all seasons.

Truckload specifications showed no consistent, significant change between the seasons studied. This is an indication that these specification requirements have been relatively stable.

The distribution of fruit sizes taken by retail and wholesale buyers was significantly different. Retailers generally took a larger proportion of medium and large sizes and the sizes in most abundant supply.

Retailers also took a larger proportion of their citrus in consumer-sized bags than did wholesalers. As requirements for bagged fruit increased in more recent seasons, large-volume shippers accounted for a greater share of these packs.

Average size of full truckloads increased 11 percent over the seasons studied. Of the total volume of fruit shipped in full truckloads to retailers and wholesalers, the percentage of grapefruit decreased and that of oranges increased. At the same time, mixed loads were relatively stable, ranging from 26 to 28 percent for retailers and from 38 to 46 percent for wholesalers.

Many full truckloads of grapefruit and oranges consisted of a single lot. Over the three seasons, 21 to 36 percent of the grapefruit loads and 23 to 30 percent of the orange loads were in the one-lot category. Retailers took a greater proportion of these loads than wholesalers. However, there was no evidence of a trend toward one-lot loads.

The proportion of part loads (fewer than 300 boxes) increased steadily to account for 60 percent of all loads shipped in 1966-67. Wholesalers took more part loads than retailers and medium- and small-sized packers shipped a higher proportion as part loads than did large packers. Also, shippers affiliated with a coordinated sales organization shipped a higher proportion of their total as part loads than did unaffiliated shippers.

Large-volume shippers either increased or maintained their share of interior fresh citrus markets over the three seasons in sales to both retailers and wholesalers. Small shippers showed a corresponding loss in their share of total sales, particularly to retailers. Medium-sized shippers showed a small decline in share of volume.

Cooperative sales activity increased substantially through the affiliation of both cooperatives and grower-shippers with a coordinated sales organization. Affiliated shippers increased their share of sales to both retailers and wholesalers. However, cooperative organizations accounted for a declining share of the total volume of interior citrus shipped over the period studied. This reflects a decline in the number of cooperative shippers.

A basic implication of study findings is that both buyers and shippers must be aware of each other's requirements if the marketing process is to work effectively. Shippers must meet buyers' particular requirements. Likewise, buyers should recognize the existence of a wide range of shipper capabilities to serve their specific needs.



Shipment Specifications for Florida Fresh Citrus Fruit

by

Fred E. Hulse and Phillip F. Brown
New Services Division

This report examines nonprice specifications of loads of interior Florida fresh citrus fruit shipped to retail and wholesale buyers during the 1958-59, 1961-62, and 1966-67 seasons. Load specifications are compared as indicators of buyers' requirements. Important shipment characteristics, buyer-shipper relationships, and changing shipping patterns are examined in detail.

Farmer Cooperative Service (FCS) made this study to provide Florida citrus growers, their cooperatives, and others in the industry an opportunity to examine these characteristics and to consider their implications for fresh fruit sales and shipping operations. Study findings are based on data provided by the Citrus and Vegetable Inspection Division of the Florida Department of Agriculture.

SAMPLE DATA

Inspection Division employees randomly selected a 4 percent sample of inspection records originating with Florida interior area shippers of 20,000 or more boxes during each of the three seasons. Data on load specifications, type of buyer, and kind and size of shipper were coded and placed on punch cards for analysis.¹ These samples averaged 3,600 records or 982,000 boxes of fruit a season. About 110 shippers were included each year.

Records sampled identified only the first buyer. As a result, study conclusions apply only to buyers'

activities at shipping point and are not necessarily representative of buyers' total purchases of interior area citrus. Many large retailers, for example, buy additional fruit from terminal market handlers such as prepackagers and others who fill special needs.

Sample data showed what buyers purchased but offered little explanation for specification patterns. Therefore, wherever possible, these specifications were related to market developments and industry observations that seek to explain market behavior.

METHOD OF STUDY

Comparison of nonprice specifications for truck-loads of citrus shipped to different types of buyers is a basic part of this study. To get realistic comparisons, we classified the quantities of citrus described in inspection certificates as either part load or full load with 300 boxes the minimum volume for a full truckload. Data on full loads provide the most complete measure of buyers' load specifications. Although showing mostly incomplete loadings, part-load data also provide important information on buyers' requirements.

Loads shipped to retailers and wholesalers were compared on the basis of such specifications as average number of fruit sizes and average size of lot. (A lot is any quantity of citrus uniform for all characteristics, including kind, variety, size, grade, color, and type of container.) A standard statistical test was used to determine whether significant differences existed between these averages.

A test of statistical significance of percentage differences between two samples with a 5 percent probability level was used to analyze the distribution of fruit sizes shipped to retail and wholesale buyers.

Three-fourths of the fresh citrus fruit shipped from interior Florida during the periods studied moved by truck. For this reason, load specification

¹ Buyers were classified according to their primary activity as listed in the *Fruit and Produce Credit Book*, Produce Reporter Co., Wheaton, Ill.

analysis was confined to fruit shipped by over-the-road truck. This excluded fruit shipped in trucks loaded on flat cars, or piggyback transport, which the Inspection Division classified as rail transportation. Piggyback transport was introduced to the Florida citrus industry in 1960, between the first and second seasons studied. Its growth was rapid and a tabulation of data for the 1966-67 season showed piggyback accounting for 17 percent of the interior fresh citrus shipments or 72 percent of the volume shipped by rail.

Some shippers did not identify their buyers on records filed with the Inspection Division. In the 1958-59 season, 28 percent of the fruit was shipped to unidentified buyers. In 1961-62, the figure was 23 percent; in 1966-67, only 14 percent. This was not considered a serious handicap to the study. Analysis of sizes of lots shipped to unidentified buyers showed that including these data in either of the major buyer classifications would not have changed the direction or significance of any differences between buyer groups.

SHIPMENT SPECIFICATIONS

Fresh citrus fruit specifications have become increasingly important with the growth of supermarkets and development of mass merchandising techniques. Supermarkets are major outlets for fresh citrus fruit and account for 75 percent of all grocery store sales.

Because of their massive displays, self-service vending, and advertised weekend specials, food chains require large volumes of uniform fruit. This often results in truckload or carload purchases made up of a single lot. On the other hand, food chains sometimes take multi-lot loads, including assorted kinds, varieties, and sizes of fruit in both boxes and bags.

Shippers often single out specification buying as their major marketing problem. Small-sized and medium-sized packers are particularly troubled by some specifications and often find it extremely difficult to fill a one-lot load.

Mixed load requirements also can be difficult to fill, particularly if the packer specializes in only one kind of fruit.

Retail and Wholesale Buyers Compared

Retailers and wholesalers are the two principal buyer groups for which we compared shipment specifications on a load basis.

Retailers, as a group, provide quite similar food marketing services including assembling, distributing, and retailing functions. In this study retailers included primarily the nation's food chains that purchased citrus directly from Florida shippers.

Wholesalers may perform one or more service functions, including assembling, distributing, warehousing and prepackaging. In this study, wholesalers included commission merchants, jobbers, exporters, repackers, and others who perform some wholesaling function. Florida citrus shippers who purchased fruit locally, presumably to fill out orders, were not

included in the wholesale group for the purposes of this study.

Substantial differences in load specifications for truck shipments to retail and wholesale buyers and the changing packing and shipping practices observed in this study have important implications for both shippers and buyers.

This study supports many of the observations and theories offered by food marketing specialists to explain food store procurement practices for produce generally. When appropriate, these observations are cited to provide a basis for examining and analyzing the data.

Lot Size

Retailers took significantly larger lots in both full and part truckloads of grapefruit, oranges, tangerines, and mixed citrus (table 1).

The average lot size was smallest in loads of mixed citrus and largest in loads of tangerines. Retailers took particularly large lots in full loads of tangerines. Comparisons of lot sizes for the two buyer groups showed greater differences for tangerines and smaller differences for mixed citrus.

Implications for shippers are clear. Any increase in purchases by retailers can be expected to increase the average size of lots shipped. Thus, packers seeking retailer business should expect to ship larger sized lots.

Number of Lots

Number of lots is a general measure of load characteristics and may be affected by any specification including kind of fruit, variety, size, grade, and type of container. Since a lot is any quantity of fruit uniform for all these specifications, the number of lots in a load is related to the number of variations

Table 1.—Lot size: Comparison of average number of boxes per lot of interior Florida fresh citrus shipped to retail and wholesale buyers, by truckload size and season

Kind of fruit, load size, and season	Average number of boxes per lot		
	Shipped to		Difference— retailers com- pared with wholesalers
	Retailers	Wholesalers	
Grapefruit only			
Part loads	Number	Number	Number
1958-59	81	38	+43**
1961-62	76	43	+33**
1966-67	58	42	+16**
Full loads			
1958-59	154	88	+66**
1961-62	181	106	+75**
1966-67	136	119	+17
Oranges only			
Part loads			
1958-59	71	42	+29**
1961-62	87	48	+39**
1966-67	89	50	+39**
Full loads			
1958-59	157	98	+59**
1961-62	201	95	+106**
1966-67	224	131	+93**
Tangerines only			
Part loads			
1958-59	76	38	+38**
1961-62	115	39	+76**
1966-67	93	50	+43**
Full loads			
1958-59	250	122	+128**
1961-62	314	108	+206**
1966-67	331	119	+212**
Mixed citrus			
Part loads			
1958-59	47	27	+20**
1961-62	39	28	+11**
1966-67	40	29	+11**
Full loads			
1958-59	67	44	+23**
1961-62	65	46	+19**
1966-67	66	50	+16**

¹ Part loads contain fewer than 300 boxes; full loads, 300 boxes or more.

** Significant at the 0.01 level.

of these characteristics. Thus, this measure combines the influence of all specifications into one figure.

One or two lots in a load generally means large-sized lots; many lots in a load generally means small-sized lots. There is a direct relationship between number of lots and lot size for any given vehicle capacity.

Table 2.—Number of lots: Comparison of average number of lots per load of interior Florida fresh citrus shipped to retail and wholesale buyers, by truckload size and season

Kind of fruit, load size, and season	Average number of lots per load		
	Shipped to		Difference— retailers com- pared with wholesalers
	Retailers	Wholesalers	
Grapefruit only			
Part loads	Number	Number	Number
1958-59	1.9	2.9	-1.0**
1961-62	1.8	2.5	-0.7**
1966-67	2.3	2.6	-0.3
Full loads			
1958-59	2.5	4.5	-2.0**
1961-62	2.2	3.8	-1.6**
1966-67	3.2	3.7	-0.5
Oranges only			
Part loads			
1958-59	1.8	2.7	-0.9**
1961-62	1.7	2.5	-0.8**
1966-67	1.5	2.3	-0.8**
Full loads			
1958-59	2.3	3.8	-1.5**
1961-62	1.9	4.1	-2.2**
1966-67	1.9	3.2	-1.3**
Tangerines only			
Part loads			
1958-59	1.7	2.3	-0.6
1961-62	1.2	2.4	-1.2**
1966-67	1.4	2.2	-0.8**
Full loads			
1958-59	1.6	3.1	-1.5**
1961-62	1.2	3.6	-2.4**
1966-67	1.2	3.6	-2.4**
Mixed citrus			
Part loads			
1958-59	4.1	5.6	-1.5**
1961-62	4.7	5.6	-0.9**
1966-67	4.6	5.4	-0.8*
Full loads			
1958-59	5.4	8.6	-3.2**
1961-62	5.6	8.4	-2.8**
1966-67	6.0	8.3	-2.3**

¹ Part loads contain fewer than 300 boxes; full loads, 300 boxes or more.

* Significant at the 0.05 level.

** Significant at the 0.01 level.

Loads of citrus shipped to retailers contained significantly fewer lots than loads shipped to wholesalers (table 2). The average number of lots in a load was smallest for tangerines and largest for mixed fruit, following the relationship shown in the analysis of lot size.

Considering these findings, shippers seeking retailer business should expect to provide loads with a minimum number of lots.

Number of Fruit Sizes

Fruit size is the most important specification affecting the movement of citrus fruit. Each variety of citrus is produced in at least three or four high-volume sizes and usually an additional one or two sizes are produced in enough volume to interest the fresh fruit trade. Other sizes are frequently sorted out and sent to processing plants, sometimes directly from the grove. Effectively marketing the entire range of sizes is a major industry objective.

For this study, number of sizes was determined for six fruit categories: (1) grapefruit; (2) early, mid-season, and late oranges; (3) temple oranges; (4) tangelos; (5) murcott honey oranges; and (6) tangerines. If a load contained fruit from more than one of these categories, the number of sizes in each was added to give the load total.

The citrus industry has consistently provided food retailers with uniformly sized products. Observers point out that mass merchandising practices require uniformly sized produce that can be sold by count rather than weight. This study shows that loads of interior area citrus shipped to retailers contained significantly fewer fruit sizes than loads shipped to wholesalers (table 3).

The number of fruit sizes in a load heavily influences the number of lots per load. A comparison of the average number of lots (table 2) with the average number of fruit sizes per load (table 3) taken by retail and wholesale buyers shows this relationship. The average number of fruit sizes and the average number of lots in loads of tangerines shipped to retailers was identical.

Varieties

As many as four major varieties of both oranges and grapefruit may be available to buyers at some time during the Florida citrus shipping season. This suggests that varieties could be a cause for important differences in buyers' load specifications. However, variety was not found to be a highly significant factor affecting load characteristics.

Differences in the average number of varieties in loads of all kinds of citrus shipped to retailers and wholesalers were not significant except for full loads of oranges and grapefruit shipped in 1961-62 (appendix table 1). Even in those loads, differences were small.

Table 3.—Number of fruit sizes: Comparison of average number of fruit sizes per load of interior Florida fresh citrus shipped to retail and wholesale buyers, by truckload size and season

Kind of fruit, load size, and season ¹	Average number of fruit sizes per load		
	Shipped to		Difference—retailers compared with wholesalers
	Retailers	Wholesalers	
<u>Grapefruit only</u>			
Part loads	Number	Number	Number
1958-59	1.6	2.3	-0.7**
1961-62	1.6	2.0	-0.4**
1966-67	1.8	2.1	-0.3*
Full loads			
1958-59	2.1	3.3	-1.2**
1961-62	1.8	2.6	-0.8**
1966-67	2.3	2.6	-0.3
<u>Oranges only</u>			
Part loads			
1958-59	1.7	2.4	-0.7**
1961-62	1.5	2.1	-0.6**
1966-67	1.4	2.1	-0.7**
Full loads			
1958-59	2.1	3.2	-1.1**
1961-62	1.6	3.1	-1.5**
1966-67	1.6	2.8	-1.2**
<u>Tangerines only</u>			
Part loads			
1958-59	1.7	2.3	-0.6
1961-62	1.2	2.4	-1.2**
1966-67	1.4	2.2	-0.8**
Full loads			
1958-59	1.6	3.1	-1.5**
1961-62	1.2	3.2	-2.0**
1966-67	1.2	3.4	-2.2**
<u>Mixed citrus</u>			
Part loads			
1958-59	3.6	4.9	-1.3**
1961-62	3.8	4.7	-0.9**
1966-67	3.6	4.6	-1.0**
Full loads			
1958-59	4.4	6.8	-2.4**
1961-62	4.5	6.4	-1.9**
1966-67	4.6	6.4	-1.8**

¹ Part loads contain fewer than 300 boxes; full loads, 300 boxes or more.

* Significant at the 0.05 level.

** Significant at the 0.01 level.

Grades

During the three seasons studied, over 92 percent of the citrus shipped from the interior area was U.S. grade No. 1. Thus, opportunity to compare differences in the number of grades in loads shipped to retail and wholesale buyers was limited.

However, retailers' purchases rarely included more than one grade per load (appendix table 2). In

contrast, wholesalers' purchases of multigrade loads, although limited, were frequent enough to show small and significant differences when compared with retailers' purchases, particularly for full loads of grapefruit and mixed citrus shipped in 1958-59 and 1961-62.

This demonstrates the emphasis retailers place on uniformity of product, and the requirements shippers must meet to attract retailers' business.

Container Types

Types of containers used by the Florida citrus industry vary in both size and material. At least seven types were in general use during each season studied. Among those commonly used, the 4/5 bushel, or half box, is manufactured of both wood and fibreboard materials; 5-pound and 8-pound consumer-sized bags are made of both film and vrexar mesh. During the 1966-67 season, containers of other sizes and materials, once widely used, were being phased out.

Loads of citrus shipped to retailers showed only small differences in number of container types compared with loads shipped to wholesalers (appendix table 3). Significant differences were scattered among full loads of grapefruit in 1961-62, full loads of oranges in 1961-62 and 1966-67, and part loads of mixed citrus in 1958-59 and 1961-62. With the exception of 1966-67, retailers took fewer container types than wholesalers in full loads of grapefruit and oranges, but a larger number in loads of mixed citrus.

Over the three seasons examined, the average number of container types in loads of grapefruit and oranges ranged from 1.1 to 1.5. For tangerines, the average ranged from 1.0 to 1.1 and for mixed citrus from 1.7 to 2.4.

Scattered evidence of significance and small differences suggest that the number of container types in a load may not be the best measure of the importance of this specification. The volume of citrus shipped in different containers and changing container specifications affecting the industry are discussed in another part of this report.

Retail Buyers Compared

Load specifications were analyzed for three categories of retail buyers in 1958-59 and 1961-62. These included: (1) the four largest chains; (2) the five to 10 next largest; and (3) the 11 to 20 largest chains.

In 1966-67, a comparable grouping was analyzed including (1) the four largest or national chains; (2) regional chains; and (3) local chains. (One of the four largest chains was classified as a regional in 1966-67.)

Business Volume Not A Factor

Analysis of retail buyers showed little or no difference in load specifications for the three categories of retail buyers. Because these categories were based on volume of business, size of retail operation appeared to have little effect on load specifications. This supports the observation that local, regional, and national chains with similar facilities and comparable shares of retail sales within a highly competitive market area have similar produce requirements.

Only when the four largest and all other retailers were compared did any significant differences in retail buyer groups appear. Thus, our detailed analysis of retailers is confined to these two buyer groups.

The Four Largest and All Other Retailers

Retailers took 26 to 28 percent of the total volume of interior area citrus shipped in the seasons studied. The four largest retailers took 17 percent of all interior shipments in 1958-59, and about 16 percent in 1961-62 and 1966-67, or a slightly declining but major share of retail shipments.

Comparisons of load specifications of the four largest retailers with those of all other retailers showed some significant differences (appendix tables 4-8). However, significant differences in these buyers' specifications did not occur consistently for loads of different kinds of fruit or for all seasons. Furthermore, the direction of differences was not always consistent for the same kind of loads.

The four largest retailers took significantly smaller lots of grapefruit in full loads than did other retailers during each season studied (appendix table 4). The four took significantly more lots in full loads of grapefruit during the three seasons (appendix table 5). For the first two seasons studied, these large retailers also took significantly more fruit sizes in full loads of grapefruit (appendix table 6).

A few other significant differences in lot size, number of lots, and number of fruit sizes taken by these two retail buyer groups were scattered among loads of various types. Significant differences in number of varieties and number of containers taken by these buyers occurred only rarely (appendix tables 7 and 8).

Specification Change

Over the three seasons, little consistent change was observed in truckload specifications for citrus shipped to retail and wholesale buyers. Specifications analyzed for change included size of lot, number of lots, fruit sizes, varieties, and container types. Many changes between seasons were significant but, with one exception, these changes did not occur over consecutive measuring periods.

The increasing size of orange lots shipped to retailers in full truckloads was the only specification change found to be both consistent and significant (appendix table 9). Similar comparisons of lot size, number of lots, and number of fruit sizes in loads shipped to the four largest retailers and all other retailers showed no consistent and significant changes for the periods measured.

Lack of consistent change over the periods studied suggests a stabilization of load specifications.

TOTAL VOLUME SPECIFICATIONS

Another method of evaluating specifications is on a total volume shipped basis. For example, distributions of fruit sizes and container types showed important buyer preferences. Truckload characteristics gave further indication of important differences in marketing practices.

Fruit Sizes

Volume of any particular fruit size varies from season to season. However, distribution of fruit sizes follows a general pattern. For instance, grapefruit is usually most abundant in the relatively small 96 size, oranges in the 200 and 252 sizes, and tangerines in the 176 size.

Distributions of major fruit sizes taken by retail and wholesale buyers were significantly different for eight important varieties (appendix table 10). Only for early and late orange varieties did any major size category fail to indicate significant differences between these buyer groups.

Differences in the distribution of major fruit sizes taken by retail and wholesale buyers are shown graphically for white and pink seedless grapefruit, midseason and late oranges, and tangerines in the accompanying chart. Except for tangerines, retailers took a larger proportion of the medium and large sizes of these varieties. Retailers also took a larger proportion of the size in most abundant supply except for grapefruit varieties. These basic patterns also were evident for temple oranges and to a lesser extent for early oranges.

Some industry observers believe large-volume retailers, with their requirements for a narrow range of the more popular sizes, tend to buy the heart out of the crop. Loads consisting of one or two fruit sizes reflect this. Loading out an adequate volume of a given fruit size can be a problem for small shippers.

Container Types

Four-fifths bushel boxes and cartons are the most widely used citrus containers in Florida. During the 1966-67 shipping season, the 1-3/5 bushel container was phased out. Industry figures show boxes accounted for 82 percent of all interior area shipments in 1958-59, 79 percent in 1961-62, and 78 percent in 1966-67.

Buyers' Requirements

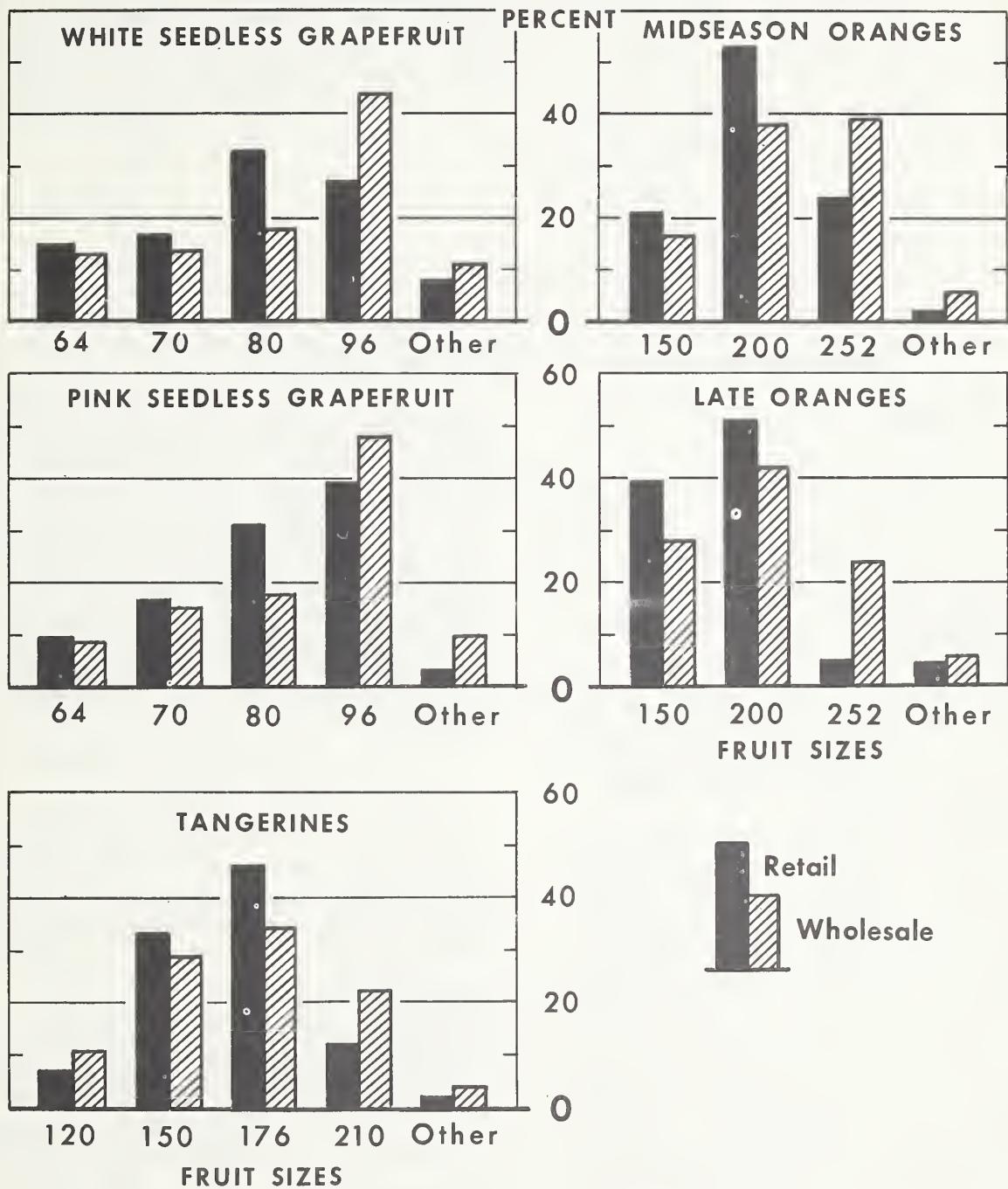
Retailers took a large proportion of their citrus in consumer-size packages. Five- and 8-pound bags made up 29 to 48 percent of the grapefruit and 30 to 37 percent of the oranges shipped to retailers (appendix table 11). Over one-third of the grapefruit and oranges shipped to the four largest retailers was in 5- and 8-pound bags in each season studied, but in 1966-67, grapefruit shipments in bags rose to a high of 59 percent.

In contrast, in none of the seasons studied did the proportion of grapefruit and oranges shipped to wholesalers in 5- and 8-pound bags ever exceed 13 percent. However, bagged fruit made up a constantly increasing percentage of the volume shipped to wholesalers.

Another way of considering container requirements is to compare the percentage of citrus shipped to different types of buyers in 5- and 8-pound bags and in all types of containers (table 4).

Requirements for bagged fruit may exceed the levels shown here because some buyers, both retailers and wholesalers, do their own prepackaging in terminal markets or distribution centers. Both bulk and boxed fruit are used by terminal market prepackagers.

DISTRIBUTION OF CITRUS FRUIT SIZES SHIPPED TO RETAIL AND WHOLESALE BUYERS



1958-59, 1961-62 AND 1967-68 DATA COMBINED.

Figure 1

Table 4.—Containers shipped to buyers: Percentage of interior Florida grapefruit and oranges shipped, by type of buyer and type of container, 1966-67

Kind of fruit	Type of buyer	Container type		
		Bags, 5 and 8 pound	All other containers ¹	Total shipped
<i>Percent</i>				
Grapefruit	Retailer	57	22	31
	Wholesaler	25	61	52
	Packer-shipper and unidentified	18	17	17
Total		100	100	100
Oranges	Retailer	49	21	26
	Wholesaler	38	64	59
	Packer-shipper and unidentified	13	15	15
Total		100	100	100

¹ Includes small quantity of bulk fruit, not exceeding 2 percent in any buyer category.

Shippers' Problems

Containers can be a serious problem for shippers. Materials accounted for 32 to 52 percent of the average cost of packing and selling citrus fruit in 1967-68.¹ Even with the recent reduction in the number of approved containers, maintaining a complete container inventory is costly and difficult for all but the largest packers.

The investment required for automatic bagging equipment is high—but the alternatives may be less attractive. Hand packing or semi-automatic equipment requires much labor and increases costs. But failure to provide consumer-size packs may foreclose the opportunity for some sales.

Possibly because of these problems, an increasing share of the 5- and 8-pound bags is being packed by large shippers (appendix table 12). Large-volume shippers have always packed a high percentage of 5- and 8-pound bags; since 1958-59 their percentage of this bag market has increased markedly. For instance in 1958-59 packers with an annual volume of 600,000 or more boxes accounted for 21 percent of all containers and 33 percent of the 5- and 8-pound bags. By 1966-67, these large packers accounted for 35 percent of all containers and 52 percent of the 5- and 8-pound bags. Much of this increase in volume of bagged fruit was at the expense of smaller shippers (20,000 to

299,000 boxes), whose share of bagged fruit volume declined from 24 percent in 1958-59 to 15 percent in 1966-67.

Some industry observers have said that large-volume merchandisers prefer to buy prepackaged produce rather than perform the packing operation themselves. This study not only confirms this observation but also makes its implications quite clear—shippers seeking retailer business should expect a heavy demand for bagged fruit. It is equally clear that buyers will find large-volume packers the most probable suppliers of bagged fruit.

Truck Loads

Analysis of the total volume of fresh citrus distributed by truck showed other important specification characteristics. Factors considered in the distribution of full truckloads included average size of load, kind of fruit, percentage of one-lot loads, and percentage of full and part loads.

Average Size of Load

Increasing size of truckloads was one of the most basic changes that occurred over the three seasons studied. Average size of full truckloads was as follows:

Full loads ¹	Average number of boxes by seasons		
	1958-59	1961-62 (Boxes)	1966-67
Grapefruit only	384	394	431
Oranges only	375	385	420
Tangerines only	381	388	426
Mixed Citrus	374	381	411
All full loads	378	386	419

¹ 300 boxes or more.

¹ Spurlock, A. H., *Cost of Packing and Selling Florida Fresh Citrus Fruits, 1967-68 Season*. Agr. Econ. Mimeo Rpt. EC 69-6. Dept. of Agr. Econ., Fla. Agr. Exper. Sta., Feb. 1969.

Average increase in size of full truckloads was 41 boxes or 11 percent over the three seasons. Reasons for this increase are not entirely clear, but probable causes include more readily available higher capacity trucks, higher truck weight limits, and competition from piggyback rail service. This last point is important because trailers fully loaded for piggyback service in the 1966-67 season averaged 13 more boxes, or at least a thousand pounds more fruit than highway vehicles.

Kind of Fruit

The percentage of the total fruit volume shipped to retailers and wholesalers in full loads of different kinds of fruit changed over the periods studied, with a shift in the relative importance of grapefruit and orange loads (appendix table 13). The data provided no clues as to reasons for this shift.

The percentage of total fruit volume shipped to retailers and wholesalers in full loads of mixed fruit was relatively stable for the periods studied, ranging from 26 to 28 percent of retailers' volume and 38 to 46 percent of wholesalers' volume.

Mixed load specifications can be difficult to fill and many shippers, particularly those specializing in one kind of fruit, have had to make adjustments in their packing and sales programs to meet such requirements. In fact, full load data do not adequately reflect the total number of mixed loads shipped because many packers combine part loads of different kinds of fruit to fill mixed load requirements.

One-lot Loads

One-lot loads have the narrowest of specifications. Thus, many shippers find this kind of load a difficult problem.

Between 21 and 36 percent of the grapefruit and 23 to 30 percent of the oranges shipped to retailers and wholesalers in full truckloads during the three sample seasons consisted of one lot (appendix table 14). Retailers were relatively heavy purchasers of one-lot loads. Full-truck, one-lot loads of grapefruit moving to retailers ranged from 21 to 48 percent compared with 19 to 22 percent for wholesalers. Similarly, full truckloads of oranges shipped to retailers ranged from 39 to 52 percent one-lot loads compared to 8 to 17 percent for wholesalers.

Small- and medium-sized packers continue to ship one-lot loads despite the problems attributed to this

kind of sale. For instance, 25 percent of the one-lot grapefruit loads and 36 percent of the one-lot orange loads shipped to retailers and wholesalers in the 1966-67 season were handled by packers whose annual volume did not exceed 299,000 boxes (appendix table 15).

Shippers with an annual volume of 600,000 boxes or more accounted for 52 percent of the one-lot grapefruit loads shipped to retailers and wholesalers during 1966-67, or 67 percent of these loads shipped to retailers and 39 percent of those shipped to wholesalers. However, these large shippers handled only 28 percent of the one-lot orange loads to both retailers and wholesalers, or 35 percent of the loads shipped to retailers and 12 percent of those shipped to wholesalers.

The percentage of one-lot loads shipped varied over the three seasons studied and there appeared to be no relationship between the percentages of one-lot grapefruit and orange loads. Also there was no evidence of a trend toward one-lot loadings.

Full and Part Loads

In contrast to the narrow specifications of the one-lot load, a part load often represents but one portion of a multilot load with a broad range of specifications. It may represent one shipper's contribution to a cooperative effort to fill a buyers' range of specification requirements.

Buyers' reasons for taking part loads may include: (1) small volumes of citrus are needed; (2) part loads of citrus are combined in loads with other produce; (3) specialty citrus products are needed in less than full-load quantities; and (4) part loads from two or more shippers are combined to form full loads.

Retailers and wholesalers have been taking an increasing percentage of part loads—50 percent in 1958-59, 54 percent in 1961-62, and 60 percent in 1966-67 (appendix table 16). During these seasons, the four largest retailers took 31 to 43 percent part loads, all other retailers 42 to 58 percent, and wholesalers 56 to 64 percent.

Considering buyers' merchandising requirements, the distribution of full and part loads follows a logical pattern with retailers taking a smaller percentage of part loads than do wholesalers.

The distribution of full and part loads by size and kind of shipper reveals the other side of the specification problem. For example, in 1966-67, the percentage of

full or part truckloads shipped was directly related to shipper volume as follows:

Size of load	Shipper volume		
	600,000 or more boxes	300,000 to 599,999 boxes	20,000 to 299,999 boxes
(Percent)			
Part	50	61	70
Full	50	39	30
Total	100	100	100

As shipper volume decreased, the percentage of part loads shipped increased. This suggests that small- and medium-sized shippers cooperated in meeting buyers' full-load requirements. Some shippers voluntarily cooperated to supply buyers' needs but such arrangements have limitations. Other shippers met this situation by affiliating with a coordinated sales organization.

Assembling Part Loads

In the 1966-67 season, one-third of all Florida shippers were affiliated with a coordinated sales organization that could among other things, arrange for assembling part loads to meet full-load requirements. Affiliated shippers have special opportunities to complement and supplement supplies to better meet buyers' needs. Thus the percentage of part loads shipped

by affiliated shippers might be expected to be substantially higher than the percentage for unaffiliated shippers. Distribution of these loads by shipper affiliation was:

Size of load	Affiliated shippers	Unaffiliated shippers
	(Percent)	
Part	66	59
Full	34	41
Total	100	100

Although percentages of full and part loads handled by affiliated and unaffiliated shippers were substantially different, differences were not as great as might have been expected.

Coordinated selling is basically a cooperative endeavor. Florida's largest coordinated sales organization, the Florida Citrus Exchange, is cooperatively organized and operated. However, not all cooperative shipping associations have affiliated for sales purposes.

Some people believe cooperatives operate differently from other shipping organizations. Comparisons of full- and part-load shipments by cooperatives and other shippers in 1966-67 showed little difference between the two groups. Cooperatives shipped 59 percent part loads; other shippers, 61 percent.

BUYER-SHIPPER RELATIONSHIPS

In analyzing volume fruit specifications, certain buyer-shipper relationships stood out. Detailed examination of these relationships by size of shipper, kind of organization, and sales affiliation suggests both sales barriers and marketing opportunities.

Size of Shipper and Type of Buyer

Over the three seasons studied, large shippers (600,000 boxes or more annually) either increased or maintained their share of interior Florida fresh citrus markets (appendix table 17). These increases were at the expense of small shippers (20,000 to 299,999 boxes annually) and to a lesser extent at the expense of medium-sized shippers (300,000 to 599,999 boxes annually).

Large shippers showed increased sales to both retailers and wholesalers from 21 percent of all shipments in 1958-59 to 35 percent in both 1961-62 and

1966-67. Medium-sized shippers showed about the same level of sales to all retailers, an increase to wholesalers but a moderate overall decline in total sales from 36 percent in 1958-59, to 30 percent in 1961-62 and 32 percent in 1966-67.

Small shippers had a decreasing percentage of shipments to retailers and a moderate decline to wholesalers or a combined decline in volume shipped from 44 percent in 1958-59 to 32 percent in 1966-67. Some changes in the percentage of shipments to buyer types resulted from improved shipper reporting of buyers and thus fewer unidentified buyers.

Large shippers took the lead in meeting retailers' and wholesalers' needs, but the percentages of buyers' requirements supplied by medium- and small-sized shippers is noteworthy. Although showing some moderate decline, small- and medium-sized shippers had an important role in meeting the needs of even the largest buyers.

Cooperatives and Type of Buyer

The percentage of interior area fresh citrus shipped by cooperatives declined from 32 percent in 1958-59 to 26 percent in 1966-67 (appendix table 18). The number of cooperative shippers serving Florida citrus growers showed a corresponding decline from 25 percent of all shippers in 1958-59 to 17 percent in 1966-67.

Cooperatives' shipments to the four largest retailers declined during this period, but shipments to other retailers showed a slight increase that just about maintained the level of cooperative shipments to all retailers. Despite fluctuations in the percentage of citrus shipped to wholesalers by cooperatives, no appreciable change occurred from 1958-59 to 1966-67.

Sales Affiliation and Type of Buyer

Affiliated shippers accounted for 25 percent of interior area fresh citrus shipped in 1966-67 compared with 19 percent in 1958-59 (appendix table 19). This was due primarily to an increasing number of affiliated shippers. Many new affiliates were small and had a lesser impact on volume shipped than their numbers would suggest.

Affiliated shippers maintained their share of the volume shipped to the four largest retailers and increased the percentage moved to all retailers. However, affiliated shippers' largest gains were in sales to wholesalers, accounting for 17 percent of all shipments in 1966-67 compared with 11 percent in 1958-59.

Segmented Market

Some marketing specialists believe that direct marketing leads to a segmented market with shippers becoming identified with particular buyers and vice versa. Direct marketing in this case means buyer-shipper negotiations without an intermediary agent. Direct negotiations are feasible only if the shipper

can meet buyers' requirements on mutually satisfactory terms.

The implications for both buyers and shippers are clear—buyers will do business with packers who can fill their requirements. This undoubtedly is a major reason for the relatively heavy concentration of sales to retailers by large-volume shippers. It is also a reason for much of the inter-packer business that allows one shipper to fill out load requirements with the help of other packers. It explains the recent expansion of affiliated sales efforts and specialized packing by individual cooperating shippers. It is also a major reason for the heavy flow of bagged fruit from large-volume shippers to large-volume retailers.

Reliable Business Organizations

Almost in the nature of a warning to growers and packers, students of produce marketing have said that large-volume merchandisers want to deal with reliable shippers and prefer to do business with shippers capable of handling all arrangements for trucking, bookkeeping, rejections, and adjustments. This implies a preference for large well-staffed shipping organizations and a corresponding lack of interest for doing business with smaller shippers. Although smaller shippers may be equally reliable, they usually lack the facilities of manpower to perform some services desired by large retailers. Some smaller shippers meet buyers' service requirements through affiliated sales organizations equipped to perform various marketing services.

Basically the specifications analyzed in this study showed Florida interior area fresh citrus shippers meeting a variety of buyers' needs. Changes in packing, selling, and transportation have for the most part been gradual, but point to improved efficiency. To benefit from these efficiencies and, in fact, to be most efficient, both buyers and shippers should constantly evaluate their marketing practices.

APPENDIX

Appendix table 1.—Number of varieties: Comparison of average number of varieties per load of interior Florida fresh citrus shipped to retail and wholesale buyers, by truckload size and season

Kind of fruit, load size, and season ¹	Average number of varieties per load		
	Shipped to		Difference— retailers com- pared with wholesalers
	Retailers	Wholesalers	
Grapefruit only			
Part loads	Number	Number	Number
1958-59	1.2	1.2	0
1961-62	1.2	1.2	0
1966-67	1.2	1.2	0
Full loads			
1958-59	1.2	1.3	-0.1
1961-62	1.2	1.4	-0.2**
1966-67	1.4	1.5	-0.1
Oranges only			
Part loads			
1958-59	1.0	1.0	0
1961-62	1.0	1.0	0
1966-67	1.1	1.1	0
Full loads			
1958-59	1.0	1.0	0
1961-62	1.0	1.1	-0.1**
1966-67	1.1	1.1	0
Tangerines only			
Part loads			
1958-59	1.0	1.0	0
1961-62	1.0	1.0	0
1966-67	1.0	1.0	0
Full loads			
1958-59	1.0	1.0	0
1961-62	1.0	1.0	0
1966-67	1.0	1.0	0
Mixed citrus			
Part loads			
1958-59	2.5	2.4	+0.1
1961-62	2.4	2.4	0
1966-67	2.6	2.5	+0.1
Full loads			
1958-59	2.7	2.6	+0.1
1961-62	2.8	2.7	+0.1
1966-67	3.1	2.9	+0.2

Appendix table 2.—Number of grades: Comparison of average number of fruit grades per load of interior Florida fresh citrus shipped to retail and wholesale buyers, by truckload size and season

Kind of fruit, load size, and season ¹	Average number of fruit grades per load		
	Shipped to		Difference— retailers com- pared with wholesalers
	Retailers	Wholesalers	
Grapefruit only			
Part loads	Number	Number	Number
1958-59	1.0	1.0	0
1961-62	1.0	1.1	-0.1*
1966-67	1.0	1.0	0
Full loads			
1958-59	1.0	1.2	-0.2**
1961-62	1.0	1.1	-0.1**
1966-67	1.0	1.0	0
Oranges only			
Part loads			
1958-59	1.0	1.0	0
1961-62	1.0	1.0	0
1966-67	1.0	1.0	0
Full loads			
1958-59	1.0	1.0	0
1961-62	1.0	1.0	0
1966-67	1.0	1.0	0
Tangerines only			
Part loads			
1958-59	1.0	1.0	0
1961-62	1.0	1.0	0
1966-67	1.0	1.0	0
Full loads			
1958-59	1.0	1.0	0
1961-62	1.0	1.1	-0.1
1966-67	1.0	1.0	0
Mixed Citrus			
Part loads			
1958-59	1.0	1.1	-0.1**
1961-62	1.1	1.1	0
1966-67	1.0	1.1	-0.1*
Full loads			
1958-59	1.0	1.1	-0.1**
1961-62	1.0	1.1	-0.1**
1966-67	1.0	1.0	0

¹ Part loads contain fewer than 300 boxes; full loads, 300 boxes or more.

** Significant at the 0.01 level.

¹ Part loads contain fewer than 300 boxes; full loads, 300 boxes or more.

*Significant at the 0.05 level.

** Significant at the 0.01 level.

Appendix table 3.—Number of container types: Comparison of average number of container types per load of interior Florida fresh citrus shipped to retail and wholesale buyers, by truckload size and season

Kind of fruit, load size, and season ¹	Average number of container types per load		
	Shipped to		Difference— retailers com- pared with wholesalers
	Retailers	Wholesalers	

Grapefruit only

Part loads	Number	Number	Number
1958-59	1.2	1.2	0
1961-62	1.2	1.2	0
1966-67	1.3	1.2	+0.1

Full loads

Full loads	Number	Number	Number
1958-59	1.2	1.2	0
1961-62	1.1	1.3	-0.2**
1966-67	1.3	1.2	+0.1

Oranges only

Part loads	Number	Number	Number
1958-59	1.1	1.2	-0.1
1961-62	1.2	1.3	-0.1
1966-67	1.2	1.3	-0.1*

Full loads

Full loads	Number	Number	Number
1958-59	1.1	1.2	-0.1
1961-62	1.2	1.4	-0.2**
1966-67	1.2	1.5	-0.3**

Tangerines only

Part loads	Number	Number	Number
1958-59	1.0	1.0	0
1961-62	1.0	1.0	0
1966-67	1.0	1.0	0

Full loads

Full loads	Number	Number	Number
1958-59	1.0	1.0	0
1961-62	1.0	1.1	-0.1
1966-67	1.0	1.0	0

Mixed citrus

Part loads	Number	Number	Number
1958-59	1.9	1.7	+0.2*
1961-62	2.2	1.9	+0.3**
1966-67	2.1	2.0	+0.1

Full loads

Full loads	Number	Number	Number
1958-59	2.2	2.1	+0.1
1961-62	2.3	2.2	+0.1
1966-67	2.4	2.4	0

¹ Part loads contain fewer than 300 boxes; full loads, 300 boxes or more.

* Significant at the 0.05 level.

** Significant at the 0.01 level.

Appendix table 4.—Lot size: Comparison of average number of boxes per lot of interior Florida fresh citrus shipped to retail buyer groups, by truckload size and season

Kind of fruit, load size, and season ¹	Average number of boxes per lot		
	Shipped to		Difference— largest re- tailers com- pared with other re- tailers
	Four largest retailers	Other retailers	

Grapefruit only

Part loads	Number	Number	Number
1958-59	85	72	+13
1961-62	80	73	+7
1966-67	56	59	-3

Full loads	Number	Number	Number
1958-59	143	188	-45**
1961-62	138	241	-103**
1966-67	120	168	-48**

Oranges only

Part loads	Number	Number	Number
1958-59	63	84	-21
1961-62	95	81	+14
1966-67	83	92	-9

Full loads	Number	Number	Number
1958-59	179	129	+50**
1961-62	197	207	-10
1966-67	216	239	-23

Tangerines only

Part loads	Number	Number	Number
1958-59	77	76	+1
1961-62	157	100	+57
1966-67	105	87	+18

Full loads	Number	Number	Number
1958-59	265	188	+77
1961-62	306	322	-16
1966-67	428	282	+146**

Mixed citrus

Part loads	Number	Number	Number
1958-59	46	49	-3
1961-62	45	36	+9*
1966-67	37	43	-6

Full loads	Number	Number	Number
1958-59	66	71	-5
1961-62	64	68	-4
1966-67	60	76	-16**

¹ Part loads contain fewer than 300 boxes; full loads, 300 boxes or more.

* Significant at the 0.05 level.

** Significant at the 0.01 level.

Appendix table 5.—Number of lots: Comparison of average number of lots per load of interior Florida fresh citrus shipped to retail buyer groups, by truckload size and season

Kind of fruit, load size, and season ¹	Average number of lots per load		
	Shipped to		Difference— largest re- tailers com- pared with other re- tailers
	Four largest retailers	Other retailers	
Grapefruit only			
Part loads	Number	Number	Number
1958-59	2.0	1.8	+0.2
1961-62	2.0	1.7	+0.3
1966-67	2.2	2.3	-0.1
Full loads			
1958-59	2.6	2.1	+0.5
1961-62	2.8	1.7	+1.1**
1966-67	3.5	2.7	+0.8
Oranges only			
Part loads			
1958-59	1.9	1.8	+0.1
1961-62	1.6	1.8	-0.2
1966-67	1.6	1.5	+0.1
Full loads			
1958-59	2.1	2.8	-0.7**
1961-62	2.0	1.9	+0.1
1966-67	1.9	1.7	+0.2
Tangerines only			
Part loads			
1958-59	1.4	2.0	-0.6
1961-62	1.0	1.2	-0.2
1966-67	1.3	1.4	-0.1
Full loads			
1958-59	1.5	2.0	-0.5
1961-62	1.3	1.2	+0.1
1966-67	1.0	1.4	-0.4**
Mixed citrus			
Part loads			
1958-59	4.6	3.6	+1.0*
1961-62	4.2	5.0	-0.8
1966-67	5.0	4.3	+0.7
Full loads			
1958-59	5.5	5.3	+0.2
1961-62	5.7	5.5	+0.2
1966-67	6.6	5.2	+1.4*

Appendix table 6.—Number of fruit sizes: Comparison of average number of fruit sizes per load of interior Florida fresh citrus shipped to retail buyer groups, by truckload size and season

Kind of fruit, load size, and season ¹	Average number of fruit sizes per load		
	Shipped to		Difference— largest re- tailers com- pared with other re- tailers
	Four largest retailers	Other retailers	
Grapefruit only			
Part loads	Number	Number	Number
1958-59	1.7	1.5	+0.2
1961-62	1.7	1.6	+0.1
1966-67	1.8	1.8	0
Full loads			
1958-59	2.3	1.7	+0.6**
1961-62	2.2	1.5	+0.7**
1966-67	2.4	2.0	+0.4
Oranges only			
Part loads			
1958-59	1.7	1.7	0
1961-62	1.5	1.6	-0.1
1966-67	1.5	1.4	+0.1
Full loads			
1958-59	1.9	2.6	-0.7**
1961-62	1.6	1.6	0
1966-67	1.6	1.6	0
Tangerines only			
Part loads			
1958-59	1.4	2.0	-0.6
1961-62	1.0	1.2	-0.2
1966-67	1.3	1.4	-0.1
Full loads			
1958-59	1.5	2.0	-0.5
1961-62	1.3	1.2	+0.1
1966-67	1.0	1.4	-0.4**
Mixed citrus			
Part loads			
1958-59	4.0	3.2	+0.8*
1961-62	3.6	4.0	-0.4
1966-67	3.7	3.6	+0.1
Full loads			
1958-59	4.5	4.3	+0.2
1961-62	4.5	4.4	+0.1
1966-67	4.9	4.2	+0.7

¹ Part loads contain fewer than 300 boxes; full loads, 300 boxes or more.

* Significant at the 0.05 level.

** Significant at the 0.01 level.

¹ Part loads contain fewer than 300 boxes; full loads, 300 boxes or more.

* Significant at the 0.05 level.

** Significant at the 0.01 level.

Appendix table 7.—Number of varieties: Comparison of average number of varieties per load of interior Florida fresh citrus shipped to retail buyer groups, by truckload size and season

Kind of fruit, load size, and season ¹	Average number of varieties per load		
	Shipped to		Difference— largest re- tailers com- pared with other re- tailers
	Four largest retailers	Other retailers	
Grapefruit only			
Part loads	Number	Number	Number
1958-59	1.2	1.2	0
1961-62	1.3	1.1	+0.2
1966-67	1.2	1.3	-0.1
Full loads			
1958-59	1.2	1.1	+0.1
1961-62	1.3	1.2	+0.1*
1966-67	1.4	1.4	0
Oranges only			
Part loads			
1958-59	1.1	1.0	+0.1
1961-62	1.1	1.0	+0.1
1966-67	1.1	1.1	0
Full loads			
1958-59	1.0	1.0	0
1961-62	1.0	1.0	0
1966-67	1.1	1.1	0
Tangerines only			
Part loads			
1958-59	1.0	1.0	0
1961-62	1.0	1.0	0
1966-67	1.0	1.0	0
Full loads			
1958-59	1.0	1.0	0
1961-62	1.0	1.0	0
1966-67	1.0	1.0	0
Mixed citrus			
Part loads			
1958-59	2.4	2.5	-0.1
1961-62	2.5	2.3	+0.2
1966-67	2.8	2.4	+0.4
Full loads			
1958-59	2.8	2.5	+0.3
1961-62	2.9	2.7	+0.2
1966-67	3.3	2.8	+0.5**

¹ Part loads contain fewer than 300 boxes; full loads, 300 boxes or more.

* Significant at the 0.05 level.

** Significant at the 0.01 level.

Appendix table 8.—Number of container types: Comparison of average number of container types per load of interior Florida fresh citrus shipped to retail buyer groups, by truckload size and season

Kind of fruit, load size, and season ¹	Average number of container types per load		
	Shipped to		Difference— largest re- tailers com- pared with other re- tailers
	Four largest retailers	Other retailers	
Grapefruit only			
Part loads	Number	Number	Number
1958-59	1.2	1.2	0
1961-62	1.2	1.2	0
1966-67	1.2	1.3	-0.1
Full loads			
1958-59	1.2	1.2	0
1961-62	1.2	1.0	+0.2**
1966-67	1.2	1.3	-0.1
Oranges only			
Part loads			
1958-59	1.1	1.1	0
1961-62	1.2	1.2	0
1966-67	1.1	1.2	-0.1
Full loads			
1958-59	1.2	1.1	+0.1
1961-62	1.3	1.2	+0.1
1966-67	1.2	1.3	-0.1
Tangerines only			
Part loads			
1958-59	1.0	1.0	0
1961-62	1.0	1.0	0
1966-67	1.0	1.0	0
Full loads			
1958-59	1.0	1.0	0
1961-62	1.0	1.0	0
1966-67	1.0	1.0	0
Mixed citrus			
Part loads			
1958-59	2.1	1.8	+0.3
1961-62	1.9	2.4	-0.5*
1966-67	2.2	2.0	+0.2
Full loads			
1958-59	2.3	2.0	+0.3
1961-62	2.4	2.3	+0.1
1966-67	2.4	2.3	+0.1

¹ Part loads contain fewer than 300 boxes; full loads, 300 boxes or more.

* Significant at the 0.05 level.

** Significant at the 0.01 level.

Appendix table 9.—Lot size by season: Comparison of average number of boxes per lot of interior Florida fresh citrus shipped in three seasons, by kind of fruit, size of truckload, and type of buyer

Kind of fruit, load size, and type of buyer ¹	Average number of boxes per lot shipped in			Difference	
	1958-59	1961-62	1966-67	1958-59 compared with 1961-62	1961-62 compared with 1966-67
<u>Grapefruit only</u>					
Part loads					
Retailers	81	76	58	+5	+18**
Wholesalers	38	43	42	-5*	+1
Full loads					
Retailers	154	181	136	-27**	+45**
Wholesalers	88	106	119	-18**	-13
<u>Oranges only</u>					
Part loads					
Retailers	71	87	89	-16	-2
Wholesalers	42	48	50	-6*	-2
Full loads					
Retailers	157	201	224	-44**	-23*
Wholesalers	98	95	131	+3	-36**
<u>Tangerines only</u>					
Part loads					
Retailers	76	115	93	-39	+22
Wholesalers	38	39	50	-1	-11*
Full loads					
Retailers	250	314	331	-64	-17
Wholesalers	122	108	119	+14	-11
<u>Mixed citrus</u>					
Part loads					
Retailers	47	39	40	+8**	-1
Wholesalers	27	28	29	-1	-1
Full loads					
Retailers	67	65	66	+2	-1
Wholesalers	44	46	50	-2	-4**

¹ Part loads contain fewer than 300 boxes; full loads, 300 boxes or more.

* Significant at the 0.05 level.

** Significant at the 0.01 level.

Appendix table 10.—Citrus fruit size distribution: Number of major interior Florida citrus fruit sizes shipped to retail and wholesale buyers in significantly different proportions, by variety and season

Kind and variety of fruit	Season ¹	Major fruit sizes	
		Number	Number shipped to retailers and whole- salers in significantly different proportion ²
Grapefruit			
White seedless	1958-59	4	4
	1961-62	4	4
	1966-67	4	4
White seeded	1958-59	4	4
	1961-62	4	4
	1966-67	4	4
Pink seedless	1958-59	4	4
	1961-62	4	4
	1966-67	4	4
Oranges			
Early	1961-62	3	2
	1966-67	3	2
Midseason	1961-62	3	3
	1966-67	3	3
Late	1961-62	3	3
	1966-67	3	2
Temple	1958-59	4	4
	1961-62	4	4
	1966-67	4	4
Tangerines			
All	1958-59	4	4
	1961-62	4	4
	1966-67	4	4

¹ Fruit size data for most varieties of oranges in 1958-59 were not comparable with data for later seasons because of changes in size classification.

² Significant at the 0.05 level.

Appendix table 11.—Containers shipped to buyers: Percentage of interior Florida grapefruit and oranges shipped, by type of buyer and container type, 1958-59, 1961-62, and 1966-67

Kind of fruit, season, and container type	Retailers			Wholesalers	All buyers
	Four largest	Other	Total		
<u>Grapefruit</u>					
<u>1958-59</u>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Boxes and cartons, 4/5 and 1-3/5 bu.	62	73	66	92	81
Bags, 5 and 8 pound	36	20	31	5	17
Bulk	2	7	3	3	2
All other	<u>(1)</u>	<u>(1)</u>	<u>(1)</u>	<u>(1)</u>	<u>(1)</u>
Total	100	100	100	100	100
<u>1961-62</u>					
Boxes and cartons, 4/5 and 1-3/5 bu.	57	86	69	87	78
Bags, 5 and 8 pound	42	13	29	8	19
Bulk	1	<u>(1)</u>	1	5	2
All other	<u>—</u>	<u>1</u>	<u>1</u>	<u>(1)</u>	<u>1</u>
Total	100	100	100	100	100
<u>1966-67</u>					
Boxes and cartons, 4/5 and 1-3/5 bu.	38	68	51	84	71
Bags, 5 and 8 pound	59	32	48	13	26
Bulk	—	<u>(1)</u>	<u>(1)</u>	3	2
All other	<u>3</u>	<u>—</u>	<u>1</u>	<u>(1)</u>	<u>1</u>
Total	100	100	100	100	100
<u>Oranges</u>					
<u>1958-59</u>					
Boxes and cartons, 4/5 and 1-3/5 bu.	54	67	59	90	80
Bags, 5 and 8 pound	44	26	37	5	16
Bulk	1	7	4	4	3
All other	<u>1</u>	<u>(1)</u>	<u>(1)</u>	<u>1</u>	<u>1</u>
Total	100	100	100	100	100
<u>1961-62</u>					
Boxes and cartons, 4/5 and 1-3/5 bu.	57	74	63	85	78
Bags, 5 and 8 pound	34	23	30	8	16
Bulk	8	2	6	6	5
All other	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
Total	100	100	100	100	100
<u>1966-67</u>					
Boxes and cartons, 4/5 and 1-3/5 bu.	60	71	65	84	78
Bags, 5 and 8 pound	38	27	33	11	18
Bulk	—	1	<u>(1)</u>	3	3
All other	<u>2</u>	<u>1</u>	<u>2</u>	<u>2</u>	<u>1</u>
Total	100	100	100	100	100

¹ Less than 0.5 percent.

Appendix table 12.—Containers packed by shipper volume: Percentage of all containers and 5- and 8-pound bags by shipper volume, interior Florida citrus, 1958-59, 1961-62, and 1966-67

Season	Shipper volume	All containers	5- and 8-pound bags
<i>1,000 boxes</i>			
		<i>Percent</i>	<i>Percent</i>
<u>1958-59</u>	600 or more	20.5	33.4
	300 - 599	35.5	42.4
	20 - 299	<u>44.0</u>	<u>24.2</u>
	All shippers	100.0	100.0
<u>1961-62</u>	600 or more	35.3	47.9
	300 - 599	30.0	33.5
	20 - 299	<u>34.7</u>	<u>18.6</u>
	All shippers	100.0	100.0
<u>1966-67</u>	600 or more	35.3	51.6
	300 - 599	32.3	33.8
	20 - 299	<u>32.4</u>	<u>14.6</u>
	All shippers	100.0	100.0

Appendix table 14.—One-lot loads and type of buyer: Percentage of full truckloads of interior Florida grapefruit and oranges shipped as one lot to retailers and wholesalers, 1958-59, 1961-62 and 1966-67

Kind of fruit and shipping season	Percentage of full loads shipped as one lot to:		
	Retailers	Wholesalers	Retailers & wholesalers
	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
<u>Grapefruit</u>			
1958-59	36	19	28
1961-62	48	22	36
1966-67	21	21	21
<u>Oranges</u>			
1958-59	39	11	23
1961-62	52	8	27
1966-67	47	17	30

Appendix table 13.—Kind of fruit loaded: Percentage of interior Florida fresh citrus shipped to retail and wholesale buyers, by kind of full-truckload and season

Season and kind of fruit in full loads ¹	Type of buyer	
	Retailers	Wholesalers
<i>Percent</i>		
<u>1958-59</u>		
Grapefruit only	41	29
Oranges only	27	28
Tangerines only	5	5
Mixed citrus	<u>27</u>	<u>38</u>
Total	100	100
<u>1961-62</u>		
Grapefruit only	33	21
Oranges only	34	31
Tangerines only	5	3
Mixed citrus	<u>28</u>	<u>45</u>
Total	100	100
<u>1966-67</u>		
Grapefruit only	26	19
Oranges only	40	31
Tangerines only	8	4
Mixed citrus	<u>26</u>	<u>46</u>
Total	100	100

¹ Full loads contain 300 boxes or more.

Appendix table 15.—One-lot loads and shipper volume: Percentage of one-lot, full truckloads of interior Florida grapefruit and oranges shipped, by type of buyer and packer-shipper volume, 1966-67

Packer-shipper volume	Type of buyer		
	Retailer	Wholesaler	Retailers & wholesalers
<i>1,000 boxes</i>			
	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
<u>Grapefruit</u>			
600 or more	67	39	52
300 to 599	19	26	23
50 to 299 ¹	<u>14</u>	<u>35</u>	<u>25</u>
Total	100	100	100
<u>Oranges</u>			
600 or more	35	12	28
300 to 599	30	49	36
50 to 299 ¹	<u>35</u>	<u>39</u>	<u>36</u>
Total	100	100	100

¹ Sample shows no one-lot-full-truck loads shipped by packers whose annual volume was less than 50 thousand boxes.

Appendix table 16.—Full and part truckloads and type of buyer: Percentage of interior Florida citrus shipped, by type of buyer and kind of load, 1958-59, 1961-62, and 1966-67

Season and kind of load ¹	Type of buyer			
	Four largest retailers	All other retailers	Wholesalers	Retailers and wholesalers
	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
1958-59				
Part loads	35	42	56	50
Full loads	65	58	44	50
Total	100	100	100	100
1961-62				
Part loads	31	45	61	54
Full loads	69	55	39	46
Total	100	100	100	100
1966-67				
Part loads	43	58	64	60
Full loads	57	42	36	40
Total	100	100	100	100

¹ Includes all kinds of fruit in straight and mixed loads.

Appendix table 17.—Percentage distribution of interior Florida citrus shipped, by type of buyer and size of shipper, 1958-59, 1961-62, and 1966-67

Season	Shipper volume	Type of buyer						
		Retailers			Wholesalers	Packer-shippers	Unidentified	Total
		Four largest	All other	All				
		<i>1,000 boxes</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
1958-59	600 or more	4.9	3.5	8.4	5.7	.6	5.8	20.5
	300 to 599	5.9	2.4	8.3	15.1	.5	11.6	35.5
	20 to 299	6.5	2.7	9.2	22.8	1.0	11.0	44.0
	Total	17.3	8.6	25.9	43.6	2.1	28.4	100.0
1961-62	600 or more	8.1	4.6	12.7	11.3	1.7	9.6	35.3
	300 to 599	5.3	3.4	8.7	15.6	.9	4.8	30.0
	20 to 299	3.0	3.6	6.6	18.6	1.1	8.4	34.7
	Total	16.4	11.6	28.0	45.5	3.7	22.8	100.0
1966-67	600 or more	7.3	5.9	13.2	16.3	1.1	4.7	35.3
	300 to 599	5.2	3.5	8.7	21.0	.4	2.2	32.3
	20 to 299	3.0	3.0	6.0	18.9	.7	6.8	32.4
	Total	15.5	12.4	27.9	56.2	2.2	13.7	100.0

Appendix table 18.—Percentage distribution of interior Florida citrus shipped, by type of buyer and kind of organization, 1958-59, 1961-62, and 1966-67 seasons

Season and kind of organization	Type of buyer						
	Four largest retailers	All other retailers	All retailers	Wholesalers	Packer-shippers	Unidentified	Total
	Percent	Percent	Percent	Percent	Percent	Percent	Percent
<u>1958-59</u>							
Cooperatives	5.7	3.4	9.1	17.9	0.9	3.9	31.8
Other	11.6	5.2	16.8	25.7	1.2	24.5	68.2
Total	17.3	8.6	25.9	43.6	2.1	28.4	100.0
<u>1961-62</u>							
Cooperatives	4.8	4.5	9.3	19.4	1.0	0.9	30.6
Other	11.6	7.1	18.7	26.1	2.7	21.9	69.4
Total	16.4	11.6	28.0	45.5	3.7	22.8	100.0
<u>1966-67</u>							
Cooperatives	3.6	4.6	8.2	17.3	0.4	—	25.9
Other	11.9	7.8	19.7	38.9	1.8	13.7	74.1
Total	15.5	12.4	27.9	56.2	2.2	13.7	100.0

Appendix table 19.—Percentage distribution of interior Florida citrus shipped, by type of buyer and shippers' sales affiliation, 1958-59, 1961-62, and 1966-67 seasons

Season and shippers' sales affiliation	Type of buyer						
	Four largest retailers	All other retailers	All retailers	Wholesalers	Packer-shippers	Unidentified	Total
	Percent	Percent	Percent	Percent	Percent	Percent	Percent
<u>1958-59</u>							
Affiliated	2.2	2.0	4.2	10.7	0.3	3.7	18.9
Unaffiliated	15.1	6.6	21.7	32.9	1.8	24.7	81.1
Total	17.3	8.6	25.9	43.6	2.1	28.4	100.0
<u>1961-62</u>							
Affiliated	2.1	2.3	4.4	12.2	0.6	0.5	17.7
Unaffiliated	14.3	9.3	23.6	33.3	3.1	22.3	82.3
Total	16.4	11.6	28.0	45.5	3.7	22.8	100.0
<u>1966-67</u>							
Affiliated	2.4	3.5	5.9	17.0	0.1	2.0	25.0
Unaffiliated	13.1	8.9	22.0	39.2	2.1	11.7	75.0
Total	15.5	12.4	27.9	56.2	2.2	13.7	100.0

Other Publications Available

Fresh Fruit and Vegetable Marketing Organizations in the Northeastern and Central States, General Report 84, Martin A. Blum.

Economic Considerations in Marketing Sweetpotatoes from the Eastern Shore of Virginia, Marketing Research Report 487, Clyde B. Markeson, Frank W. Bell, and Leo F. Zimmerman.

Pooling and Other Grower Payment Methods as Used by Local Fruit, Vegetable and Tree Nut Cooperatives, General Report 67, Clyde B. Markeson.

Marketing Virginia White Potatoes: Buyers' Preferences and Practices, Marketing Research Report 682, Harold K. Jolley and Frank W. Bell.

Pooling by Florida Citrus Cooperatives Following the 1962 Freeze, Marketing Research Report No. 764, Fred E. Hulse, Julian R. Meiten, and H. G. Hamilton.

Coordinated Marketing Programs of Selected Fruit and Vegetable Cooperatives, Marketing Research Report No. 826, Richard S. Berberich.

Using Your Fruit and Vegetable Co-op, Educational Circular 7.

How to Start a Cooperative, Educational Circular 18.

A copy of each of these publications may be obtained upon request while a supply is available from:

Farmer Cooperative Service
U.S. Department of Agriculture
Washington, D.C. 20250